

shell, a capping compound comprising a compound having the formula $\text{HS}(\text{CH}_2)_n\text{X}$ wherein X is a carboxylate, and at least one additional coating comprising an amino acid which is operably linked to the capping compound; and wherein a coating of the at least one additional coating comprises one or more reactive functionalities, and the nucleobase comprises one or more reactive functionalities, which are used to operably link the functionalized nanocrystal to the nucleobase.

24. The functionalized nanocrystal-labeled nucleobase according to claim ~~23~~¹², further comprising a linker which operably links the functionalized nanocrystal to the nucleobase.

25. The functionalized nanocrystal-labeled nucleobase according to claim ~~23~~¹³, wherein the one more reactive functionalities is selected from the group consisting of an amino group, a thiol group, an amino reactive group, a thiol reactive group, a carboxyl-reactive group, a carboxyl group, and a combination thereof.

26. A functionalized nanocrystal-labeled nucleobase comprising a functionalized nanocrystal operably linked to a nucleobase; wherein the functionalized nanocrystal comprises a core and a shell, a capping compound comprising homocysteine, and at least one additional coating selected from the group consisting of a maleimide derivative, and an amino acid; and wherein a coating of the at least one additional coating comprises one or more reactive functionalities, and the nucleobase comprises one or more reactive functionalities, which are used to operably link the functionalized nanocrystal to the nucleobase.

27. The functionalized nanocrystal-labeled nucleobase according to claim ~~26~~¹⁴, further comprising a linker which operably links the functionalized nanocrystal to the nucleobase.

16 26
b 2
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28. The functionalized nanocrystal-labeled nucleobase according to claim ~~26~~¹⁴⁻²⁴, wherein the one more reactive functionalities is selected from the group consisting of an amino group, a thiol group, an amino reactive group, a thiol reactive group, a carboxyl-reactive group, a carboxyl group, and a combination thereof.

[Please rewrite claim 7 in amended form as follows:

A 3 5 7. (Amended) The functionalized nanocrystal-labeled nucleobase according to claim [6] ~~23~~¹, wherein the amino acid comprises diaminocarboxylic acid.

[Please rewrite claim 5 in amended form as follows:

b 4 5. (Amended) The functionalized nanocrystal-labeled nucleobase according to claim [4] ~~26~~¹, wherein the least one additional coating comprises an amino acid, and wherein the amino acid comprises diaminocarboxylic acid.

[Please rewrite claim 10 in amended form as follows:

8 10. (Amended) A kit comprising, in separate packaging: an amount of a functionalized nanocrystal having one or more reactive functionalities; and an amount of a nucleobase having one or more reactive functionalities; wherein the functionalized nanocrystal comprises a core and a shell, a capping compound comprising a compound having the formula $HS(CH_2)_nX$ wherein X is a carboxylate, and a coating comprising diaminocarboxylic acid which is operably linked to the capping compound.

17 29-34
A 6
[Please add new claims 29-34 as follows:

29. A kit comprising, in separate packaging: an amount of a functionalized nanocrystal having one or more reactive functionalities; and an amount of a nucleobase having one or more reactive functionalities; wherein the functionalized nanocrystal comprises a core and a shell, a capping compound comprising a compound having the formula $HS(CH_2)_nX$ wherein X is a carboxylate,

and at least one additional coating comprising an amino acid which is operably linked to the capping compound.

b 28 18 17 27 30. The kit according to claim 29, wherein the one more reactive functionalities is selected from the group consisting of an amino group, a thiol group, an amino reactive group, a thiol reactive group, a carboxyl-reactive group, a carboxyl group, and a combination thereof.

A 6 19 20 21 cont 17 27 31. The kit according to claim 30, further comprising a linker which can be used to operably link the functionalized nanocrystal to the nucleobase.

b 20 30 32. A kit comprising, in separate packaging: an amount of a functionalized nanocrystal having one or more reactive functionalities; and an amount of a nucleobase having one or more reactive functionalities; wherein the functionalized nanocrystal comprises a core and a shell, a capping compound comprising homocysteine, and at least one additional coating selected from the group consisting of a maleimide derivative, and an amino acid.

21 31 30 20 33. The kit according to claim 32, wherein the one more reactive functionalities is selected from the group consisting of an amino group, a thiol group, an amino reactive group, a thiol reactive group, a carboxyl-reactive group, a carboxyl group, and a combination thereof.

22 32 20 30 34. The kit according to claim 32, further comprising a linker which can be used to operably link the functionalized nanocrystal to the nucleobase.

Please rewrite claim 8 in amended form as follows:

b A 1 6 8. (Amended) A kit for using functionalized nanocrystal-labeled nucleobases in a process selected from the group consisting of

a?
cont

strand synthesis, sequencing a synthesized strand, and a combination thereof, the kit comprising a plurality of species of functionalized nanocrystal-labeled nucleobases, wherein an amount of each species of functionalized nanocrystal-labeled nucleobase is separately packaged, wherein each species of functionalized nanocrystal-labeled nucleobase comprises a different nucleobase type than the nucleobase type of the other species of the plurality of species of functionalized nanocrystal-labeled nucleobases, and wherein each species of functionalized nanocrystal-labeled nucleobase is differentially labeled with a species of functionalized nanocrystal that can emit a fluorescence emission that is spectrally resolvable as compared to the species of functionalized nanocrystals used to label the other species of the plurality of species of functionalized nanocrystal-labeled nucleobases.

Please cancel claims 4 and 6.

Please cancel claims 13-22 as being drawn to a non-elected invention.

Remarks

The Applicants affirm election of claims 1-12, as corresponding to Group I of the Examiner's Groupings, and have canceled claims 13-22 as being drawn to a non-elected invention. The Applicants reserve the right to file one or more divisional applications with respect to the non-elected claims. The Applicants are appreciative of the Examiner's reminder concerning 37 CFR 1.48(b), and note that the currently named inventors each remain an inventor in at least one claim of the elected claims 1-12 (and pending claims 1-3, 5, and 7-12).

Currently pending are claims 1-3, 5, 7-12, & 23-34 for a total of 22 claims, with claims 1, 8, 10, 23, 26, 29, and 32 as being independent claims. Accordingly, payment for 2 "excess" claims & 4 independent claims is \$174, \$78 of which is included in the enclosed check, and \$96 of which the Examiner is respect-